Parent Information: Measurement (4th Grade)

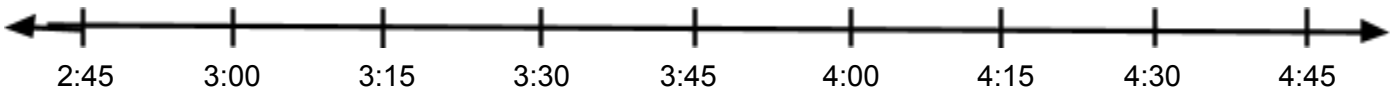
Fourth grade students need to be familiar with the sizes of different measurement units. They convert within the customary and metric measurement systems (but not between systems). Students solve problems with measurements of length, time, capacity (liquid volume), and mass.

Time:

1 year = 12 months
1 year = 52 weeks
1 week = 7 days
1 day = 24 hours
1 hour = 60 minutes
1 minute = 60 seconds

Students may be given a clock or a number line to solve problems involving time intervals.

Marta left school at the time shown on the clock. She finished her homework 35 minutes later. What time did Marta finish her homework? (4:25)



Joe left school at 3:00. It took him 15 minutes to walk home. When he got home, he started doing his homework. He did homework for 30 minutes. What time did Joe finish doing homework? (3:45)

Capacity: The amount of liquid a container can hold.

Customary Units for Capacity: Gallon, quart, pint, cup, fluid ounce

Metric Units for Capacity: Liter, milliliter

1 gallon (gal) = 4 quarts (qt)
1 quart (qt) = 2 pints (pt)
1 pint (pt) = 2 cups (c)
1 cup (c) = 8 fluid ounces (fl oz)

1 liter (L) = 1,000 milliliters (ml)

Students need to know which unit of measure is most appropriate for the capacity of an item.

Kim filled a bucket with water to mop the floor. Which measurement is closest to the amount of water in the bucket–2 cups or 2 gallons?

Carl wants to know how much water is in his water bottle. Should he measure the water in liters or milliliters?

Weight: How heavy something is; the pull of gravity on an item.

Customary Units for Weight: Ton, pound, ounce

Mass: The measure of how much matter is in an object.

Metric Units for Mass: Kilogram, gram, milligram

1 ton (T) = 2,000 pounds (lb)
1 pound (lb) = 16 ounces (oz)

1 kilogram (kg) = 1,000 grams (g)
1 gram (g) = 1,000 milligrams (mg)

Mass and weight are sometimes used interchangeably, but they are not the same thing. Weight is determined by the pull of gravity on an object so it varies by location. Mass remains the same regardless of gravity. An object would weigh less on the moon than on earth, because the pull of gravity is less, but it would have the same mass in both places.

Which is the most appropriate measure for the weight of a kitten–2 pounds or 2 tons?

Maria wants to find the mass of a small box of paper clips. Should Maria record the mass in grams or kilograms?

Length: The distance from one end of an object to the other end

Customary Units for Length: Mile, yard, foot, inch

Metric Units for Length: Kilometer, meter, centimeter, millimeter

1 mile (mi) = 1,760 yards (yd)
1 yard (yd) = 3 feet (ft)
1 foot (ft) = 12 inches (in)

1 kilometer (km) = 1,000 meters (m)
1 meter (m) = 100 centimeters (cm)
1 centimeter (cm) = 10 millimeters (mm)

Which is the most appropriate measure for the length of a book–11 inches or 11 feet?

Julian wants to find the length of the hall at school. Should Julian measure the hall in centimeters or meters?

Students may use a table or t-chart to convert measurements to solve problems.

Nora has a piece of rope that is 18 feet long. How many yards of rope does Nora have?

Feet-to-Yards Conversions

Number of Feet	Number of Yards
3	1
6	2
9	3
12	4
15	5
18	6

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3	1
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Students need to solve word problems involving measurements.

Collin has two bags of apples.

- *The first bag weighs 2 pounds and 6 ounces.*
- *The second bag weighs 4 pounds and 3 ounces.*

What is the difference between the weights of the two bags in pounds and ounces?

To solve this problem, students have to convert 4 pounds 3 ounces to 3 pounds 19 ounces. They can then subtract.

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  3 pounds  19 ounces
- 2 pounds   6 ounces
  1 pound    13 ounces
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